

Title (en)
HYDROGEN STORAGE AND DELIVERY MATERIAL

Title (de)
MATERIAL ZUR SPEICHERUNG UND ABGABE VON WASSERSTOFF

Title (fr)
MATÉRIAU DE STOCKAGE ET DE DISTRIBUTION D'HYDROGÈNE

Publication
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Application
EP 17880091 A 20171215

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Abstract (en)
[origin: WO2018107239A1] The present invention provides novel diamine-monoborane liquid organic hydrogen carriers with hydrogen storage capacities at least equivalent to prior art hydrogen carriers. The novel diamine-monoboranes of the invention provide advantages over the prior art including low cost due to the simple one-step chemical synthesis method between a diamine and a borane complex, and that the starting materials are inexpensive compared to the prior art. The novel diamine-monoboranes of the invention provide excellent dehydrogenation performance. With the presence of inexpensive and readily-available commercial catalysts, dehydrogenation occurs at ambient temperatures and pressures with high hydrogen purity. The resulting 1,3,2- diazaborolidines (cyclic diaminoboranes) are readily hydrogenated to produce the novel diamine-monoboranes of the invention. The invention also provides use of the diamine- monoboranes of the invention in a fuel cell or a portable power cell, or cell installed in conjunction with a hydrogen-burning engine. Other uses relate to transport down pipelines and in tankers.

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